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Johnston et al.

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[54] **HYDROPHILIC CARBOXY POLYURETHANES**

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[52] **U.S. Cl.** **528/60;** 428/425; 428/423.1; 528/64; 528/66; 528/71; 528/72; 252/182.22

[58] **Field of Search** 428/425; 528/60, 64, 528/66, 71, 72

[56] **References Cited**

U.S. PATENT DOCUMENTS

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[57] **ABSTRACT**

Hydrophilic polyurethane polymers having carboxy groups in the polymer backbone are prepared by reacting a polyol component, an ester of a carboxylic acid and a polyisocyanate to form a polyurethane intermediate. The intermediate is then saponified and the saponified product neutralized to form free carboxy groups. The water absorption of the intermediates and saponified polymers is above 10% and the polyurethanes may range from rigid solids to gel-like, high water absorptive polymers. Neutralization of the carboxy group with ammonium hydroxide produces a water soluble polyurethane which becomes water insoluble when the ammonia is driven off. The carboxy groups introduced into the polymeric chain provide reactive sites for attachment of various side-groups and also allow for various curing procedures. The polymers exhibit excellent adhesion to various substrates, and are suitable for use as light sensitive photographic layers on films, paper or glass; as boat and pipe coatings for decreasing hydrodynamic drag; as drug delivery systems; as burn and wound dressings; in cosmetic applications; in body implants; as coatings on cannulae; and a host of other applications.

37 Claims, No Drawings